p. 527
#24

$H_0: p = 0.50$

$H_a: p > 0.50$

$\hat{p} = \frac{640}{1000} = 0.64$

$n = 1000$

$\alpha = 0.05$

$$Z = \frac{\hat{p} - p}{\sqrt{\frac{p(1-p)}{n}}} = \frac{0.64 - 0.50}{\sqrt{\frac{(0.5)(0.5)}{1000}}} = 8.85$$

$P(Z > 8.85) = \text{normcdf}(8.85, 1\text{E}99, 0, 1) = 4.44 \times 10^{-19}$

We reject H_0 because p-value $< \alpha = 0.05$.

We have sufficient evidence that the true percent of adults with this view is over 50%

p.526 #32

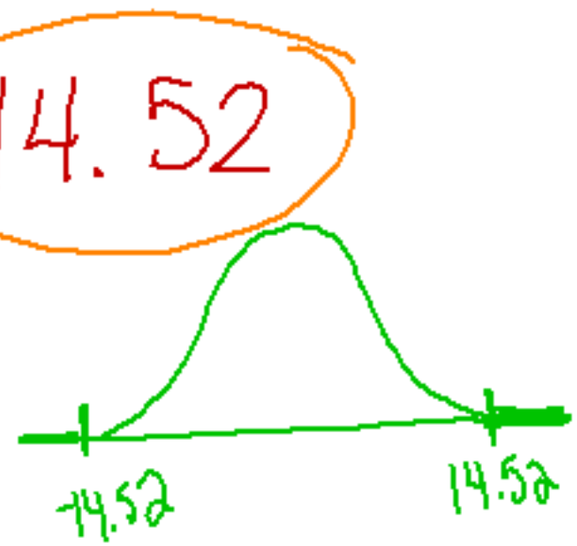
$H_0: p = 0.59$

$H_a: p \neq 0.59$

$\hat{p} = \frac{2445}{5000} = 0.489$

$\alpha = 0.05$

$$Z = \frac{\hat{p} - P}{\sqrt{\frac{P(1-p)}{n}}} = \frac{0.489 - 0.59}{\sqrt{\frac{(0.59)(0.41)}{5000}}} = -14.52$$



$2 \cdot P(Z > 14.52)$

$2 \cdot P(Z < -14.52) = 2 \cdot \text{normcdf}(-E99, -14.52, 0, 1) = 0$

We reject Ho because p-value $< \alpha = 0.05$.
We have sufficient evidence that the true percent of job satisfaction is not equal to 59%.

9.2 notes - wksht #1

$\hat{p} = 8/40 = 0.20$

$\alpha = 0.01$

$n = 40$

→ $H_0: p = 0.40$

$H_a: p \neq 0.40$

$$z = \frac{\hat{p} - p}{\sqrt{\frac{p(1-p)}{n}}} = -2.582$$

$2 \cdot P(Z < -2.582) = 2 \cdot \text{normcdf}(-E99, -2.582, 0, 1) = 0.0098$

Reject H_0.

proportion 0.40

percent 40%

Conf: $\sqrt{\frac{\hat{p}(1-\hat{p})}{n}}$ no p (claim)

test stat $\sqrt{\frac{p(1-p)}{n}}$ have p(claim)